IN THE CLAIMS

Please cancel claims 28, 39-40 and 46, without prejudice or disclaimer.

Please amend claims 24, 29, 33, 41, 43, and 45 as follows:

Claims 1-23 (canceled).

24. (currently amended) A thermal probe for use in detecting temperatures at different levels in a liquid material, the thermal probe comprising:

an elongated rod having a proximal end and a distal end, the distal end making initial contact with the liquid material;

a terminal head connected to the proximal end of the elongated rod for manual manipulation of the thermal probe by a user, the terminal head including an edge for removably positioning and resting the terminal head on an edge of an opening in a container retaining the liquid material;

a plurality of temperature-sensing junctions positioned along the longitudinal length of the rod, wherein each of the plurality of temperature-sensing junctions generates an electrical signal corresponding to the temperature of the liquid material directly contacting the respective junction; [[and]]

a plurality of electrical signal conveying members connected to the plurality of temperature-sensing junctions and extending to the proximal end of the rod for conducting the electrical signals and conductive means for conveying the electrical signals from the proximal end of the rod to a remote signal processor; and

a sheath completely surrounding the rod and including:

a plurality of apertures through an outer surface of the sheath and extending along the longitudinal length of the rod with which apertures the plurality of junctions are respectively positioned to be exposed to and to directly contact the liquid material.

25. (previously presented) The probe of claim 24, wherein the plurality of electrical signal conveying members include wires.

26. (previously presented) The probe of claim 24, wherein the rod is composed of insulating material.

27. (previously presented) The probe of claim 24, wherein the distal end of the rod is tapered.

Claim 28 (canceled).

29. (currently amended) The probe of claim [[28]] 24, wherein the sheath is composed of stainless steel.

30. (previously presented) The probe of claim 24, wherein each of the junctions includes a thermocouple.

31. (previously presented) The probe of claim 24, wherein each of the junctions includes a transistor.

32. (previously presented) The probe of claim 24, wherein each of the junctions includes a resistance temperature detector.

33. (currently amended) A loading system for loading a molten material into a container, the loading system comprising:

a loading arm extending from a source of the molten material for introducing the material into a container;

a valve for controlling the flow of the liquid material through the loading arm and into the container;

a thermal probe inserted vertically into the molten material and including:

an elongated rod;

a terminal head connected to a proximal end of the elongated rod for manual manipulation of the thermal probe by a user, the terminal head including an edge for removably positioning and resting the terminal head on an edge of an opening in the container retaining the liquid material; and

a plurality of temperature-sensing junctions positioned along the longitudinal length of the rod, wherein each of the plurality of temperature-sensing junctions generates an electrical signal corresponding to the temperature of the molten material contacting the respective junction; and

a programmed processor responsive to the electrical signals from the plurality of temperature-sensing junctions operatively connected to control the flow of molten material through the valve, wherein the programmed processor is programmed to include a shut-off condition when the temperature of the molten material in contact with a first junction is higher than the temperature of the molten material in contact with at least one junction positioned below the first junction on the rod; and

wherein the shut-off condition includes detecting when the temperature of the molten material in contact with the first junction is greater than a predetermined set temperature.

34. (previously presented) The loading system of claim 33, wherein the molten material is sulfur.

35. (previously presented) The loading system of claim 33, wherein the probe is attached to the loading arm.

36. (previously presented) The loading system of claim 33, wherein each of the plurality of junctions includes a thermocouple.

37. (previously presented) The loading system of claim 33, wherein each of the plurality of junctions includes a transistor.

38. (previously presented) The loading system of claim 33, wherein each of the plurality of junctions includes a resistance temperature detector.

Claims 39-40 (canceled).

41. (currently amended) The loading system of claim [[40]] 33, wherein the predetermined set temperature is the average of a normal temperature of the molten material and a vapor temperature associated with the molten material.

42. (previously presented) The loading system of claim 33, further comprising:

a display for displaying a measurement value, the processor generating the measurement value corresponding to the level of the molten material in the container as derived from the electrical signals produced by the plurality of junctions.

43. (currently amended) A method controlling the loading liquid material into a container, the method comprising the steps of:

a) producing a probe, said probe including a rod and a plurality of temperature-sensing junctions positioned along the longitudinal length of the rod, wherein each of the plurality of temperature-sensing junctions generates an electrical signal corresponding to the temperature of the liquid material contacting the respective junction;

a1) providing a programmed processor responsive to the electrical signals from the plurality of temperature-sensing junctions operatively connected to control the flow of molten material through a shut-off valve, wherein the programmed processor is programmed to include a shut-off condition when the temperature of the molten material in contact with a first junction is higher than the temperature of the molten material in contact with at least one junction positioned below the first junction on the rod, and wherein the shut-off condition includes detecting when the temperature of the molten material in contact with the first junction is greater than a predetermined set temperature;

b) inserting the probe vertically into the container for the liquid material;

c) removably positioning and resting an edge of a terminal head connected to a proximal end of the elongated rod on an edge of an opening in the container retaining the liquid material, with the terminal head allowing manual manipulation of the probe by a user;

d) admitting the liquid material into the container through a loading arm provided with [[a]] the shut-off valve controlled by the programmed processor;

e) receiving temperature signals from the probe at [[a]] the programmed processor;

f) processing the temperature signals at the programmed processor to determine temperature values of the liquid material at each junction of the probe;

g) determining whether [[a]] the shut-off condition has occurred;

h) continuing to admit the liquid if the shut-off condition has not occurred;

i) repeating steps (e) through (h); and

j) closing the shut-off valve under the control of the programmed processor to stop the liquid flow to the container when the shut-off condition has occurred.

44. (previously presented) The method of claim 43, wherein the liquid material is molten sulfur.

45. (currently amended) The method of claim 43, wherein the ~~step (g) includes the step of:~~

~~determining that the temperature of the liquid material in contact with a first junction is greater than a~~ predetermined set temperature [[,]] ~~being~~ is the average of a normal liquid temperature of the liquid material and a vapor temperature associated with the liquid material.

Claim 46 (canceled).